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MOBILE LEARNING ZIMBABWE- LECTURERS' PERCEPTIONS

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ABSTRACT

The benefits of mobile-learning (m-learning) have been widely publicised. Research on m-learning is predominantly from developed nations, with a dearth of empirical studies on m-learning at tertiary institutions from developing nations. This study investigates the feasibility of implementing m-learning in the developing nation of Zimbabwe by investigating factors that influence m-learning implementation and adoption, assessing learners and lecturers' perceptions towards m-learning and challenges of m-learning implementation. This study will develop a new model for m-learning especially for Zimbabwean universities and other tertiary institutions in similar developing countries.

KEYWORDS

M-learning, Developing Countries, Tertiary Institutions

1. INTRODUCTION

Education is widely accepted as a leading tool in economic development (Brown and Lauder 1996, Gylfason 2001). In developed nations, mobile learning (m-learning) is used to support and enhance traditional learning and teaching approaches in tertiary institutions. Lack of access to quality education continues to be a major impediment to economic growth in developing countries. Most research on m-learning has been done in developed countries with little empirical research being conducted in developing countries Hwang and Tsai (2011). This research aims to develop comprehensive m-learning model for Zimbabwe tertiary institutions, one which takes into account learners, instructors, challenges, factors influencing adoption and pedagogy. The study will be carried out in Zimbabwe's five top ranked universities with a student population of 48000.

The major objectives and research questions of the study are given in Table 1.

Table 1. Research Objectives and Research Questions

Research Objective	Research Questions
To identify the factors that influence m-learning implementation in Zimbabwe.	What are the factors that influence the implementation of m-learning in Zimbabwe?
To assess students and lecturers perspectives and perceptions towards m-learning.	What are students and lecturer perspectives and perceptions towards m-learning?

2. RELATED WORK

There are encouraging results from ongoing m-learning projects in developing countries such as learning language in India Kam, Kumar et al. (2009), m-learning for Mathematics in South Africa Roberts and Vänskä (2011), m-learning with physician trainees in Botswana Chang, Littman-Quinn et al. (2012) however there is a paucity of empirical research on m-learning in tertiary institutions in emerging economies. A major

impediment to m-learning implementation in developing countries is lack of infrastructure in the form of unreliable electricity supplies and poor Internet connectivity. While Internet connectivity is almost ubiquitous in developed countries this is not the case in most developing countries (Andersson and Grönlund 2009, Ford and Leinonen 2009). Electricity constraints in developing nations have largely prohibited the adoption of information technology (IT) related activities (Hosman and Baikie 2013, Armey and Hosman 2016).

There are cultural norms and social concerns to be considered when implementing m-learning. Cultural differences in relation to perceptions and attitudes toward technology are key factors for acceptance of m-learning and its future use particularly in developing countries. Keengwe and Bhargava (2014) stress that understanding the cultural boundaries and social environment of developing countries before implementing mobile technologies for teaching and learning can play a substantial role for their success. Another major obstacle to m-learning adoption and implementation is training. Sife, Lwoga et al. (2007) identified the need for staff development when integrating information and communication technologies (ICT) with education, not only for improving skills but to also facilitate the process of integrating ICT with education. Handal, MacNish et al. (2013) detail the diverse training required by instructors ranging from basic training, application of technologies, disciplinary training, and specific training. (Schuck, Aubusson et al. 2013) suggest the need to further explore understandings of m-learning rather than mobile usage.

3. METHODOLOGY

The mixed-methods approach will be employed for this study. Mixed methods have been lauded for producing a complete and holistic understanding to a phenomenon (Denscombe 2008, Flick 2009, Venkatesh, Brown et al. 2013) and complementarity by seeking clarification from one method using results from another method Greene, Caracelli et al. (1989). The study will follow an exploratory design because of the scant previous research on m-learning in tertiary education in Zimbabwe, starting with the in-depth interviews and then a survey. This research aims to develop a comprehensive m-learning model for Zimbabwe tertiary institutions, one which takes into account learners and instructors, challenges, factors influencing adoption, pedagogy and characteristics of m-learning.

Qualitative techniques will be employed to collect data from instructors. NVivo will be used for some of the mechanical tasks involved in qualitative analysis such as coding and storing of data as well as retrieving and aggregating previously coded data, and making connections among coding categories.

A survey will be used for the quantitative research. The researcher intends to use SPSS which supports statistical analysis of data and allows for in-depth data access and preparation, analytical reporting, graphics and modelling. SPSS will be used to conduct a number of tests including factor analysis and cluster analysis.

4. WORK DONE SO FAR

This paper discusses some findings of the instructors' perceptions on m-learning so far. It is noteworthy that this study will be one of the few studies that follows qualitative techniques to investigate instructors' adoption of m-learning, from the papers reviewed for this study a majority of them employ statistical techniques with the exception of two studies. The study by Schuck, Aubusson et al. (2013) involved seven lecturers while the study by Handal, MacNish et al. (2013) involved 177 lecturers who participated in an online survey. To assess academic staff perceptions and gain better understanding towards m-learning, the main research question was formulated as: What are the instructors' perspectives and perceptions towards mobile learning? One of the open ended specific questions was:

- What are the constraints of using mobile devices in teaching and learning?

The survey for the qualitative study involved sending emails to the potential respondents with the questions and a link for the online survey. Most respondents chose to respond to the questions via email rather than use the online survey. Twenty instructors have responded to the survey.

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5. RESULTS AND THEMES

The themes on constraints to m-learning revolve around infrastructure, lack of mobile devices, and training.

5.1 Infrastructure

Most academics indicated that constraints to m-learning were inadequate infrastructure in terms of bandwidth and poor electricity supplies characterised by frequent power cuts. Closely related to poor bandwidth was poor connectivity. Most instructors remarked that electricity outages affected Internet connectivity. Other lecturers lamented the lack of continuous access to Internet for both students and instructors. While other lecturers described connectivity as slow or no Internet connections. Most instructors cited bandwidth as a major constraint to m-learning. Some instructors bemoaned the cost of Internet access as they have to foot the bill themselves. This was supported by other instructors who stated that *"data is expensive in Zimbabwe"*.

This study indicates inadequate bandwidth at universities in Zimbabwe based on the comments from the lecturers. However an earlier study by (Chitanana 2012) suggests that although bandwidth demand at Zimbabwe universities continues to increase due to increased enrolment there is inappropriate use of the bandwidth by some students. (Chitanana 2012) asserts the need for bandwidth management at Zimbabwe tertiary institutions given the high demand. (Chitanana 2012) further argues that the bandwidth is essentially for productive use at these institutions to yield quality academic work. With the limited bandwidth at tertiary institutions it may be important for the Zimbabwe institutions to come up with bandwidth management policies that do not infringe on the learners' academic rights. Bandwidth management strategies may be a priority in Zimbabwe tertiary institutions since it is a strategic resource. The control, monitoring and optimisation of the resource may enable learners and lecturers access to academic resources. It may also be important to educate the various stakeholders at universities on how to efficiently and effectively use the available bandwidth to meet the institutions' educational needs.

(Traxler 2013) proposes that the major issue of electricity can be remedied by use of solar panels. (Traxler 2013) concedes that this solution is more expensive than commercial power but more practical and can be implemented incrementally. Mobile networks are cheaper and quicker to install compared to fixed telephony systems (Motlik 2008).

Although it seems the current infrastructure in Zimbabwe universities is inadequate for m-learning at a large scale, an improved use of the available resources particularly bandwidth could slightly ease the demand of this resource. Solar chargers would be very costly for mass adoption initially in m-learning implementation however there is a possibility that solar chargers may prove to be cheaper and more sustainable in the long run. M-learning also provides an opportunity for Zimbabwe to by-pass high investment costs in fixed telephone infrastructure and invest more in installation of mobile phone networks. In so doing m-learning provides a more viable opportunity to expand education programs on a larger scale. It is imperative to improve the quality and access of Internet infrastructure for m-learning to be successful in Zimbabwe

5.2 Lack of Mobile Devices

Most academics were of the opinion that students did not have mobile devices suitable for m-learning. Some cited mobile devices not compatible with modern technology. Some instructors indicated that some students did not have mobile devices at all and could not afford mobile devices. It was noted that in some institutions instructors were expected to use their own devices for m-learning instructions which was perceived as unfair by the academics. This was further buttressed by comments like:

"No such devices (mobile) have been provided to lecturers and students"

"Availability of mobile phone may also be a challenge since students come from different backgrounds and have different resources endowments."

Literature suggests the continuous growth in the near ubiquity or ubiquity of mobile devices (Gikas and Grant 2013, Ally and Tsinakos 2014) with (Kabanda 2014) claiming that the mobile phone density in Zimbabwe is above 100%. While it would appear that there is a contradiction between the findings and literature it may be that mobile devices are ubiquitous even in Zimbabwe but that some of these mobile devices may not be suitable for m-learning, for example some learners may have basic mobile phones which

are not smartphones. It may be concluded that in Zimbabwe mobile devices suitable for m-learning are not ubiquitous. This presents a challenge in m-learning implementation as m-learning adoption cannot rely on the ubiquity of mobile devices or Bring Your Own Device, since some learners may not afford to purchase suitable devices due to costs.

5.3 Lack of Training

The academics in Zimbabwe acknowledge the need for training in using mobile technologies for teaching and learning. While a majority of lecturers have no problems using mobile technologies for their personal use, they concede that they have basic skills in utilising the mobile technologies for teaching and learning. Most academics feel they are not fully equipped to utilise mobile technologies for teaching and learning as they are *"learning as they go"*. Most academics felt they had inadequate skills to use mobile technologies for teaching and learning purposes citing the need for skill acquisition, with one instructor declaring "*no requisite training have been provided to lecturers and students".* Some instructors professed basic knowledge on how to use mobile technologies for teaching and learning, there was a suggestion that *"Both lecturers and students need to be introduced and taught on how to use whatever online platforms used by their institutions".*

These results are consistent with the previous study by Handal, MacNish et al. (2013), that highlight the need for diverse training required by lecturers when implementing m-learning. Comments by most lecturers indicate that these instructors are comfortable with mobile-device usage however they appreciate the need to be trained in utilising the mobile devices for teaching and learning purposes, which corroborate the ideas of Schuck, Aubusson et al. (2013) who suggested that the need to further explore understandings of mobile learning, as opposed to mobile usage.

Isaacs (2007) states that Zimbabwe adopted a National Information Communication Technology (ICT) policy in 2005, which made significant references to the promotion of ICTs in education including their pedagogical use in educational institutions including provisions for staff development. The study by Musarurwa (2011) gives an example of an externally-funded project with positive results of ICT integration with Education in Zimbabwe including staff development.

The findings of this study indicate a lack of staff development regarding m-learning. Notwithstanding the fact that there is a policy to support ICT integration with education in Zimbabwe and that the lecturers are willing to adopt m-learning the lack of staff development would clearly hamper m-learning implementation. A possible explanation for the lack of staff development could be socio-economic challenges currently in Zimbabwe. Although there is a National ICT policy in place in Zimbabwe to integrate education with ICT the lack of training in m-learning for lecturers could also be attributed to: inconsistencies in applying the policy when it comes to m-learning, or the policy not addressing m-learning specifically or an outdated policy. It may be concluded that a policy alone is not enough as it needs to be embraced, understood and backed by all relevant stakeholders for it to be effective.

6. CONCLUSION

This paper is one of the few empirical studies on m-learning in developing countries, which aims to develop a comprehensive m-learning model for Zimbabwe tertiary institutions. The mixed-method approach is expected to provide an extensive understanding of m-learning implementation and adoption on a large scale from a developing country perspective. The initial findings highlight and confirm some key aspects and constraints to m-learning from a developing country perspective which are infrastructure and staff development. Although infrastructure may not be fully in place in Zimbabwe the available resources could be used wisely and more efficiently particularly in academic institutions to further academic endeavours. If the various stakeholders in these institutions were more informed on the efficient and effective use of bandwidth coupled with guided bandwidth management policies which would not infringe on the learners' rights or stifle learner creativity and exploration this could possibly somewhat ease the demand on the bandwidth. There may be a need to review the National ICT policy to see how it aligns with m-learning.

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